Metalaxyl Registration Standard
5-13-88

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MAY 13 1988

MEMORANDUM

SUBJECT: PP#7F3470/FAP#7H5520. Metalaxyl in or on Blueberries, Walnuts, Almonds, Almond Hulls, Stone Fruits, Dried Apricots, and Prunes.

Review of Amendment of February 4, 1988.

RCB Nos.: 3788, 3789. MRID Nos.: 405031-00, -01.

FROM: Maxie Jo Nelson, Chemist
Tolerance Petition Section I
Residue Chemistry Branch
Hazard Evaluation Division (TS-769C)

THRU: Robert S. Quick, Section Head
Tolerance Petition Section I
Residue Chemistry Branch
Hazard Evaluation Division (TS-769C)

TO: Lois A. Rossi, P. M. 21
Herbicide-Fungicide Branch
Registration Division (TS-767C)

and

Toxicology Branch
Hazard Evaluation Division (TS-769C)

SUMMARY OF DEFICIENCIES REMAINING TO BE RESOLVED FOR RCB

None, for this petition.

For approval of future metalaxyl tolerances (and to support the continued registration of metalaxyl-containing products), information on the testing of metabolite CGA-94689 for its recovery/behavior using the FDA Multiresidue Protocols of PAM I will need to be supplied.

CONCLUSIONS

1. Data have now been submitted on the recovery/behavior of metalaxyl and two of its metabolites (CGA-62826 and CGA-37734) tested through FDA Multiresidue Protocols I thru IV of PAM I.

2. No deficiencies now remain to be resolved for RCB in re this petition submission.

3. For approval of future metalaxyl tolerances (and to support the continued registration of metalaxyl-containing products), FDA Multiresidue test information must also be supplied for the metabolite CGA-94689.

RECOMMENDATION

Toxicological considerations permitting, RCB now recommends in favor of the establishment of the proposed tolerances for the combined residue of the fungicide metalaxyl and its metabolites containing the 2,6-dimethylaniline moiety, and N-(2-hydroxymethyl-6-methylphenyl)-N-(methoxyacetyl)-alanine methyl ester, each expressed as metalaxyl, in or on the following raw agricultural commodities:

Commodity	Proposed Tolerance
Blueberries	2.0 ppm
Stone Fruits Crop Group	1.0 ppm
Walnuts	0.5 ppm
Almonds	0.5 ppm
Almond Hulls	10.0 ppm

and processed food commodities:

Commodity	Proposed Tolerance
Apricots, Dried	4.0 ppm
Prunes	4.0 ppm

CGA-48988 = metalaxyl; N-(2,6-dimethylphenyl)-N-(methoxyacetyl) alanine methyl ester

CGA-37734 = N-(2,6-Dimethylphenyl)-2-hydroxy-acetamide

CGA-62826 = N-(2,6,dimethylphenyl)-N-(methoxyacetyl)-alanine

CGA-94689 = N-(2-hydroxymethyl-6-methylphenyl)-N-(methoxyacetyl)-alanine methyl ester

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NOTES TO PM:

1. You should advise the petitioner of Conclusion 3.

2. The chemical name for CGA-94689 which appears in 40 CFR 180.408, 21 CFR 193.277, and 21 CFR 561.273 is incorrect. It should read:

   "N-(2-hydroxymethyl-6-methylphenyl)-N-(methoxyacetyl)-alanine methyl ester".

   This should be corrected at the earliest opportunity.

DISCUSSION

By transmittal document dated 2/4/88 (received EPA, 2/8/88; received RCB, 5/10/88), the petitioner (Ciba-Geigy Corporation) submitted a study entitled, "Multiresidue Method Testing of Metalaxyl and Metabolites in Crops and Animal Tissues", Bill B. Williams and Charles H. Condra, Analytical Bio-Chemical Laboratories (performing laboratory), 12/14/87, Report No. 36320. The study was assigned MRID No. 405031-01.

The study involved the testing for recovery/behavior of metalaxyl and two of its metabolites (CGA-37734 and CGA-62826) using the FDA Multiresidue Protocols of PAM I (Pesticide Analytical Manual, Volume I).

The petitioner's summary of the results of the testing is appended to this review as an Attachment.

This information was submitted as a result of the RCB reviews (M. Nelson) of 3/6/87 and 8/26/87, this petition.

Additionally, the need for these data (with CGA-94689 specifically mentioned) was identified in the (6/12/87) Residue Chemistry Chapter of the Metalaxyl FRSTR (Final Registration Standard and Tolerance Reassessment).

We consider the submitted data to be of sufficient scope to allow us to recommend for the tolerances of this petition. However, FDA Multiresidue test information on the recovery/behavior of CGA-94689 using the PAM I protocols will be needed to support future metalaxyl tolerance requests (and to support the continued registration of metalaxyl-containing products).

No deficiencies remain to be resolved for RCB in re this petition.

Attachment: Abstract from "Multiresidue Method Testing of Metalaxyl and Metabolites in Crops and Animal Tissues", 12/4/87, ABC Laboratory Project ID Final Report #36320. [MRID# 405031-01]

cc (with Attachment):

Reading File
Circulation
Reviewer (M. Nelson)
PP# 7F3470/FAP#5520
Metalaxyl Registration Standard
TAS (K. Arne)
ISB/PMSD (E. Eldredge)
FDA

TS-769C:RCB:Reviewer(MJN):CM#2:Rm804:557-7423:typist(mjn):5/13/88.

RDI:SectionHead:RSQuick:5/13/88:DeputyChief:RDSchmitt:5/13/88.

Attachment

ABSTRACT

Metalaxyl and two metabolites, CGA-62826 and CGA-37734, were analyzed by the Multiresidue Method Testing (MRMT) Procedure outlined by EPA Protocols I, II, III, and IV as referenced in the Pesticide Analytical Manual, Volume I (PAM I).

Under Protocol I, gas chromatographic (GC) behavior of metalaxyl, CGA-62826 and CGA-37734 was determined on 5% OV-101, 3% OV-17, 2% DEGS, and Ultrabond 20 SE packed columns using a nitrogen/phosphorus (N/P) detector. Metalaxyl and CGA-37734 chromatographed on all four columns. The 5% OV-101 column was the column of choice as determined by (1) adequate separation of the test compounds, (2) the best overall sensitivity and, (3) the best overall peak shape. After adjusting the gas chromatographic parameters to yield an RRc (Relative Retention Time, Corrected) of ethion to chlorpyrifos equal to 2.56±0.03 (PAM I, Appendix II, Protocol I, Section I.C.1), RRc values relative to chlorpyrifos were determined for both test compounds: 0.40 or 0.52 for CGA-37734 (depending on column use history) and 0.83 for metalaxyl.

CGA-62826, which is a carboxylic acid, did not elute through any of the four columns. A small interfering peak at RRc 0.69 to chlorpyrifos eluting from the OV-101 column was not CGA-62826 as confirmed by GC/mass spectrometry; thus, this compound was deleted from the remainder of the testing program.

None of the test compounds eluted from standardized Florisil® cleanup columns (PAM I 211.14d and PAM I 252.12b). Consequently, no recovery work through the entire method (Protocol I) was performed.

Under Protocol II, only metalaxyl eluted from the charcoal cleanup column (PAM I 232.34). There was frequently an apparent matrix interference present at the expected retention time of CGA-37734. Therefore, only metalaxyl was tested and reported in the recovery trials on five fatty foods and one non-fatty food. In beef round, recovery of metalaxyl ranged from 100-130% at the 0.05-0.10 ppm fortification levels; in beef liver, the range of recovery was greater, 60-160% at the 0.05-0.80 ppm fortification levels. In dairy milk, recovery of metalaxyl ranged from 78-95% at the 0.02-0.04 ppm fortification levels. Recovery of metalaxyl from soybeans ranged from 76-105% at the 1.0-2.0 ppm fortification levels, but only 0-12% was recovered at the 0.05 ppm fortification level; thus, analysis of metalaxyl is not applicable at this low level. In eggs, recovery of metalaxyl ranged from 73-108% at the 0.05-0.10 ppm levels. Recovery of metalaxyl from cabbage (non-fatty food) ranged from 94-128% at the 0.05-4.0 ppm fortification levels.

Under Protocol III, only non-fatty foods were analyzed. In general, both CGA-37734 and metalaxyl could be quantitated. In tomatoes, recovery of CGA-37734 ranged from 73-166% and recovery of metalaxyl ranged from 106-144% at the 0.05-2.0 ppm fortification levels. In potatoes, recovery of CGA-37734 ranged from 97-128% and recovery of metalaxyl ranged from 84-104% at the 0.50-1.0 ppm fortification levels. Neither compound could be properly recovered at 0.05 ppm. In cabbage, recovery of CGA-37734 ranged from 52-87% and recovery of metalaxyl

ranged from 88-116% at the 2.0-4.0 ppm fortification levels. Neither compound was quantitatively recovered at 0.05 ppm. In the case of CGA-37734, an apparent matrix interference was observed in one sample. In strawberries, recovery of CGA-37734 ranged from 67-150% and recovery of metalaxyl ranged from 94-102% at the 0.05-10.0 ppm fortification levels.

Under Protocol IV, the compounds were tested for natural fluorescence after chromatography on the specified HPLC system. None of the compounds tested were detectable upon HPLC chromatography by natural fluorescence at the specified wavelengths. Thus, testing with this protocol was terminated.

A summary of the results of multiresidue testing of metalaxyl and metabolites is also tabulated in the format recommended and published by FDA in PAM, Vol. I, "Methods Which Detect Multiple Residues," First Supplement - FY87 (PB87-911801) (See pages 36320-33 to 36320-67).

The raw data for this report is provided in a separate report entitled "Raw Data Report: Multiresidue Method Testing of Metalaxyl and Metabolites in Crops and Animal Tissues."